

Case Report

Unilateral central retinal vein occlusion with inferotemporal branch retinal artery occlusion: A Case Report

Maheswaran M^{a,*}, Anbuselvi T^b, Rajasekaran K^c.

^a Junior Resident, Department of Ophthalmology, Thanjavur Medical College and Hospital, Tamil Nadu, India.

^b Associate Professor, Department of Ophthalmology, Thanjavur Medical College and Hospital, Tamil Nadu, India.

^c Assistant Professor, Department of Ophthalmology, Thanjavur Medical College and Hospital, Tamil Nadu, India.

ARTICLE INFO

Article history:

Received 12 August 2022

Revised 14 August 2022

Accepted 15 August 2022

Keywords:

Central retinal vein occlusion

Branch retinal artery occlusion

Systemic hypertension

Abbreviations:

VEGF, Vascular Endothelial Growth Factor

CBC, Complete Blood Count

CRP, C-Reactive Protein

FBS, Fasting Blood Sugar

PPBS, Post-Prandial Blood Sugar

ACE, Angiotensin Converting Enzyme

ABSTRACT:

The association of branch retinal artery occlusion with central retinal vein occlusion is a rare presentation.

Both these conditions are commonly caused by systemic disorders like hypertension, diabetes and atherosclerosis which are most common in the old age group greater than 60 years of age. Reporting a case of a 39-year-old male patient with no known history of any systemic disorder came with complaints of sudden loss of vision of right eye for past 2 days. His visual acuity in the right eye was 5/60 (not improving with glasses) and in the left eye was 6/6. Clinical evaluation revealed right eye central retinal vein occlusion combined with branch retinal artery occlusion. Oct of right eye revealed macular edema. Systemic evaluation and investigations were done to look for the cause. Elevated blood pressure was noted and other investigations and cardiac evaluation were found to be normal. The patient was started on anti-hypertensives and intravitreal Anti-VEGF injection Bevacizumab was given to the right eye for macular edema.

*Correspondence at Maheswaran M, Junior Resident, Department of Ophthalmology, Thanjavur Medical College and Hospital, Tamil Nadu, India.

Email: drmaheswaran96@gmail.com

Cite as: Maheswaran M et al. Unilateral central retinal vein occlusion with inferotemporal branch retinal artery occlusion: A Case Report. The Journal of Medicine and Science 2022; 01(01): 10-13.

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INTRODUCTION

Central retinal artery occlusion and central retinal vein occlusion are both important causes for sudden visual loss [1]. They are most commonly unilateral and seen in old age group with history of diabetes, hypertension and atherosclerosis [2]. However, their combined occurrence in a younger age group is a rare presentation. A variety of other causes may contribute to their occurrence such as glaucoma, oral contraceptive pill, smoking, dehydration, hyperhomocystinemia, antiphospholipid antibody syndrome, factor V laden mutation, myeloproliferative disorders, chronic renal failure and ocular inflammatory disorders like sarcoidosis, Wegener granulomatosis and bechet disease [3-5]. Thus, both retinal artery and vein occlusions have many etiologies in common for both of them [6].

CASE REPORT

A case of 39-year-old male patient presented to the ophthalmology OPD with complaints of defective vision of right eye for past two days which was sudden in onset. His vision was apparently normal two days back and he had no history of any previous ocular complaints, trauma or surgery. He had no history of any systemic illness and they was no history of any drug intake.

OPHTHALMIC EXAMINATION:

Ocular examination	Right eye	Left eye
Best corrected visual acuity	5/60	6/6
Colour vision	Impaired	Normal
IOP	16 mm hg	17 mm hg

Lids	Normal	Normal
Conjunctiva	Normal	Normal
Cornea	Normal	Normal
Anterior chamber	Normal depth	Normal depth
Iris	Normal	Normal
Pupil	Reacting to light	Reacting to light
Lens	Clear	Clear

Fundus examination of the right eye revealed a clear media, swelling of the optic disc, dilatation and tortuosity of veins in all the quadrants associated with severe superficial retinal haemorrhages suggestive of central retinal vein occlusion. Areas of ischaemic retinal whitening and attenuation of retinal arteries was noted in the inferotemporal quadrant suggestive of inferotemporal branch retinal artery occlusion. The left eye fundus examination was found to be normal. Oct macula of the right eye revealed macular edema with central foveal thickness of micrometer and oct macula of the left eye was found to be normal. Thus, a clinical diagnosis of right eye central retinal vein occlusion with inferotemporal branch retinal artery occlusion with macular edema was made.

Systemic examination and investigative work up were done to look for the cause. His blood pressure was found to be 160/90 mm hg and pulse rate was 78/minute. Respiratory, cardiac, central nervous system and abdomen examination was found to be normal. Basic blood investigations (fasting blood

sugar, post-prandial blood sugar, ESR, complete blood count) were found to be normal. Further investigations to rule out other etiologies like serum cholesterol, CRP, chest X ray, thrombophilia screening, serum auto antibodies, lupus anticoagulant, serum ACE levels and carotid imaging was done and were found to be within normal limits. Cardiac evaluation was also done and was found to be normal apart from systemic hypertension which was newly diagnosed. Thus, a probable etiology of systemic hypertension was made and the patient was started on systemic anti hypertensives.

Since the patient had severe visual loss in the left eye due to macular edema, intravitreal anti VEGF (Bevazizumab) was administered and the patient was closely monitor. His visual acuity improved to 6/24 in the right eye after one month following the intravitreal injection. There was significant reduction in macular edema of the right eye. He was counseled regarding the visual prognosis and the need for continued monitoring and systemic hypertensives.

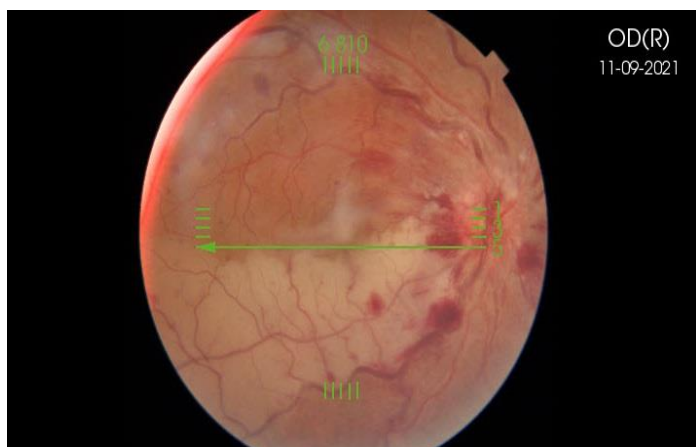


Figure 1 Fundus image of the right eye

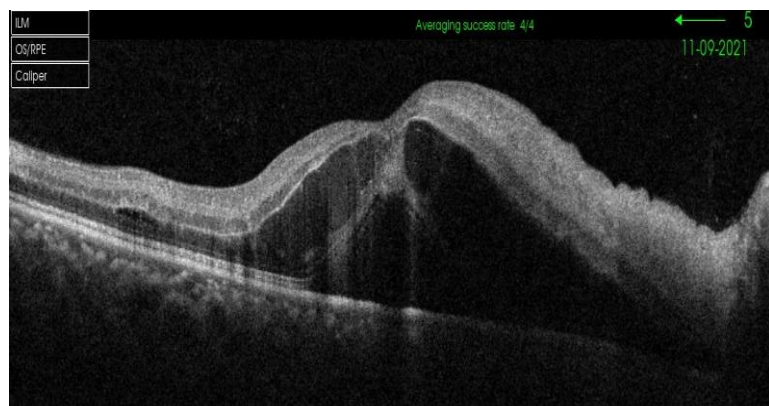


Figure 2 Optical Coherence Tomography (OCT) of the right eye

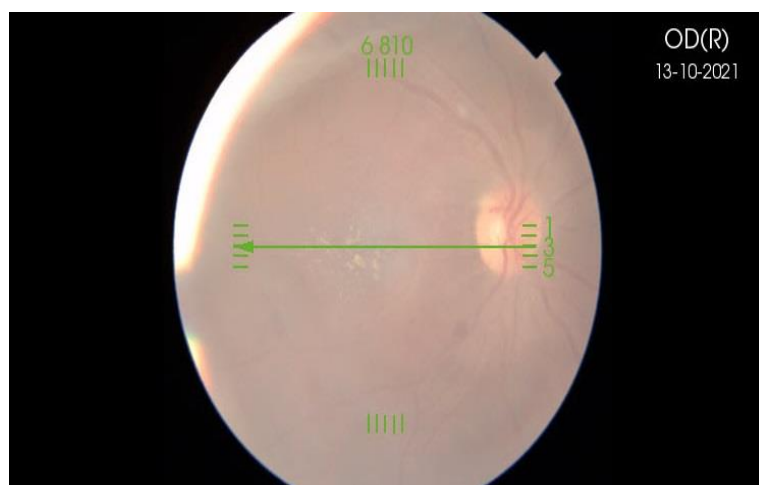


Figure 3 Fundus of right eye during follow up after one month



Figure 4 OCT of right eye during follow up after one month

DISCUSSION

Retinal vascular occlusions are seen commonly in old age group who have long standing history of systemic diseases like hypertension, diabetes and atherosclerosis. They may be also having a variety of other causes as mentioned above. The most common site of central retinal artery occlusion is at the lamina cribrosa and the most common site of central retinal vein occlusion is at or behind the

lamina cribrosa. Branch retinal vein occlusion is most common at the supratemporal quadrant where there are a greater number of arteriovenous crossings. The arteries and veins share a common adventitial sheath at the A-V crossings. The possible mechanism behind a combined arterial and venous occlusion may be due the fact that the occluded vessel may compress the non-occluded vessel at the arterio-venous crossing where they share a common adventitial sheath. The other mechanism may be due to the retinal vein occlusion, there can be stagnation of blood in the arterial system which can lead to secondary retinal artery occlusion. In every case of retinal vascular occlusion, whatever be the presentation it becomes mandatory to look for the underlying etiology and to treat it to prevent recurrence in the future. A variety of measures have been tried to treat retinal artery occlusion including ocular massage, anterior chamber paracentesis, laser embolectomy and thrombolysis [3-5]. In a retinal veinous occlusion, treatment is needed for the macular edema which causes decreased vision. Treatment options include laser therapy, intra-vitreous anti VEGF agents, intravitreal triamcinolone and intravitreal dexamethasone implant [4,5]. The patient needs long term follow up to monitor for the development of neovascularisation and its complications.

SUMMARY

Combined retinal arterial and venous occlusions are rare presentations and can cause significant ocular morbidity. Each of them can predispose to the other and moreover they have similar etiologies. This case is being reported for its rare presentation in a young adult.

Peer-Review

The manuscript has been reviewed by

1. Dr. Thangerani Raajaseharan, Head of the Department, Department of Ophthalmology, Coimbatore Medical College and Hospital, Coimbatore.
2. Dr. Jeevakala S, Associate Professor, Department of Ophthalmology, Coimbatore Medical College and Hospital, Coimbatore.

Acknowledgements

None.

Consent

The patient provided written consent to publish this case report, as well as for the publication of information.

Funding Source

None

Declaration of Competing Interest

None

Supplementary material

Not applicable

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